



Kumera Equipment for Non-Ferrous Metal Smelters



Steam Dryer

Anode Furnace

Peirce-Smith Converter

Rotary Holding Furnace

Bucket Excavator

Roll Crusher

Rotary Drum Dryer

With experience of more than a quarter of a century Kumera Corporation serves non-ferrous metal smelters, i.e. copper, nickel and zinc/lead smelters, worldwide with a full range of equipment. We have an extensive reference list of delivered dryers and various furnaces throughout the world.

Kumera Corporation is acknowledged to provide reliable, proven technology within given time frame. Equipment are designed to be operated at minimal need of maintenance, at low operational expenses and at minimum impact on the environment.



Kumera Steam Dryer

Kumera Steam Dryer – the Global Market Leader:

- 20 references during 1999–2013
- 70 % of global market share of all dryers in copper smelters
- Kumera Steam Dryer is the key equipment for the global success of steam drying for drying of non-ferrous metal concentrates
- Applications available for copper, nickel and lead smelters

Benefits of the Kumera Steam Dryer:

- High capacity of concentrate feed rate at 250 t/h
- High capacity of water evaporation rate at 25-30 t/h
- Very high energy efficiency
- Lowest specific energy consumption of any dryers
- Zero gas emission, i.e. CO_2 , SO_x , NO_x
- Lowest dust emission rate due to low gas flow rate
- Lowest operational expenses of any dryer
- Lowest need for maintenance of any dryer
- Highest availability of any concentrate dryer

- Easy maintenance due to light weight components
- Minimum space requirement
- Small size and low cost gas handling equipment
- Low steam and electric power consumption

Options for Improved Dryer Performance

- Optional waste heat recovery system integrated to the dryer, to further decrease the primary energy consumption significantly
- Optional screening and subsequent crushing of coarse fraction, all integrated into the dryer system, recommended for direct blister copper and nickel smelting applications



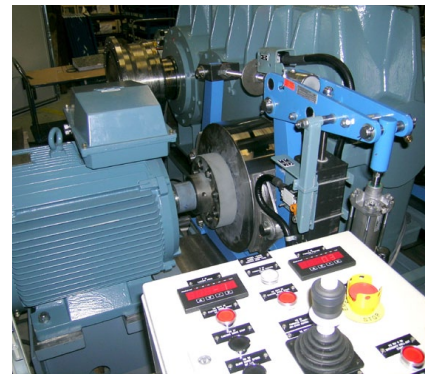
Kumera Furnaces

With delivery of some 40 complete Anode Furnace systems and over 20 P-S Converters and some Rotary Holding Furnaces, Kumera is one of the leading suppliers of such furnaces world wide.

The scope of supply may include process engineering, mechanical engineering, electrical engineering, manufacturing, instrumentation and automation for all or selected sections of the furnace systems. Main common parts include the drum, mouth, mouth cover / hood, tuyeres, support structure and the drive unit. In addition to the end wall burner (oil / gas, air / oxygen) for the anode

furnace and rotary holding furnace, also additional oxy-fuel burners and porous plugs are recommended, especially if there is a need for proper control of temperature and slag chemistry and if substantial amount of solids are to be melted in the furnace.

Kumera Corporation, being also a manufacturer of mechanical power transmissions, is in the best position to make tailor-made drive solutions according to special requirements of each customer, including required type of emergency drive, inching drive for proper casting operation and PLC based control system, all of Kumera design.



Anode Furnaces

Furnace mouth for anode furnace is supplied with a water-cooled frames (cooling elements) to increase the life-time, and to enhance the operability of the mouth. The mouth is covered by pneumatically

operated hatch to minimize heat radiation, emission and fuel consumption and air leakage inside the furnace.



Peirce-Smith Converters

Kumera design also includes the converter mouth lined with fire-resistant cast steel, apron shield, tuyere valves and swivel joint.

Rotary Holding Furnaces

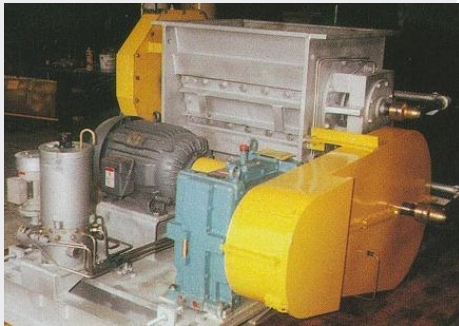
Rotary holding furnaces are designed to be operated for matte / slag separation of the TSL process to produce high quality discard slag.

Kumera Bucket Excavator



Kumera Bucket Excavators for lifting granulated matte and slag from the pit. During the transportation the water content in the material is reduced approximately to 10%. The Kumera Bucket Excavator is equipped with automatic control system for controlling the excavation operation and capacity.

Kumera Roll Crusher



Kumera Roll Crusher is specifically designed for breaking down agglomerated dust from electrostatic precipitator and waste heat boiler. The crusher is of heavy duty design and therefore suitable for crushing hot, sticky and abrasive materials. This is achieved by using water cooled rotors, external bearing supports and appropriate construction materials.

Kumera Rotary Dryer



Conventional Rotary Drum Dryers are still today suitable for special applications, like drying of concentrates at smelters with no steam available, and for side-stream solids of low capacities.



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Kumera Corporation

Kumera Corporation is a worldwide manufacturer of industrial machinery and engineering services. The corporation consists of four major operating divisions:

Power Transmission Group provides a comprehensive range of industrial and marine gearboxes for all major process industries. Kumera has more than 50 years of experience as manufacturer of mechanical power transmissions. There are more than 200.000 Kumera gear units in operation world-wide.

Technology Division specializes in state-of-the-art engineering and heavy process equipment for metallurgical and environmental industries. Kumera has successfully performed several modernization projects for metals industry and is a leading manufacturer of industrial steam dryers for copper and nickel smelters and lignite.

Foundry Division with **Peiron Oy** as the leading company produces all types of steel and iron castings, forming a link in the vertical refining chain of Kumera Corporation.

Marine Division produces propulsion gearboxes and propellers including control systems for any seafaring vessels.

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